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EXAMINER

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| ART UNIT | PAPER NUMBER |
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2613

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,211

Applicant(s)

KUU, WIEN-HAURN

Examiner

Marina Taranina

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 11-20 is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because of misspelling: "transmitting con" on line 7 should be replaced with the "transmitting core". Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because of the following informalities: "photodiode 530" (para 0028 line 6) should be replaced with "photodiode 650" in order to correspond with figure 3 of the drawings. Appropriate correction is required.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 100 in fig. 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 9 and 10 are objected to because of the following informalities:

(1) "The first displacement" recited in claim 9 line 1 should be replaced with "the first displacement device" to make a proper antecedent basis for the limitation.

(2) "The second displacement" recited in claim 10 line 1 should be replaced with "the second displacement device" to make a proper antecedent basis for the recitation.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Myszka (US 5 039 191).

With respect to Claim 1, Myszka discloses an active assembly apparatus of a planar lightguide circuit for aiming an optical transmitter at a transmitting core of a planar lightguide circuit, the active assembly apparatus comprising:

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an optical receiving device (24 in fig. 1) coupling (col. 2 lines 41-44) with an end of the transmitting core (6 in fig. 1, col. 2 lines 14-15) to receive optical signals from the transmitting core (col. 2 line 65 - col. 3 line 3);

a feedback control device (26 in fig. 1) coupling with the optical receiving device (24 in fig. 1, col. 2 lines 47-48) and the optical transmitter (4 in fig. 1, col. 2 lines 13-14), the feedback control device controlling the optical transmitter to transmit the optical signals to the optical transmitting core (col. 3 line 50-59);

and a displacement device (10 and 14 in fig. 1) coupling with the feedback control device (col. 2 lines 49-52) and the optical transmitter (col. 2 lines 15-17, 26-28), the optical transmitter (4 in fig. 1) moving to a position by way of the displacement device according to an output voltage from the feedback control device (col. 3 lines 8-15, 30-32, 55-59),

wherein the displacement device (10 and 14 in fig. 1) is made of a piezoelectric substrate (col. 3 line 57) and the optical receiving device (24 in fig. 1) receives the optical signals with maximum strength at the position (at the maximum coupling efficiency, col. 3 lines 59-64).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myszka (US 5 039 191).

(1) With respect to claim 2, Myszka discloses the active assembly apparatus of claim 1, but fails to teach that the optical transmitter comprises a light emitting diode (LED).

However, the examiner takes official notice of the fact that light emitting diodes are well known in the art and are used in optical communications due to their design simplicity and cost-effectiveness.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use LED as an optical transmitter as to realize cost-effective and simplified system design.

(2) With respect to claim 3, Myszka discloses the active assembly apparatus of claim 1, but fails to teach that the optical transmitter comprises a laser diode.

However, the examiner takes official notice of the fact that laser diodes are well known in the art and are used in optical communications as easily coupled light sources.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use laser diode as an optical transmitter as to achieve easier coupling.

(3) With respect to claim 4, Myszka discloses the active assembly apparatus of claim 1, but fails to teach that the piezoelectric substrate comprises quartz.

However, the examiner takes official notice of the fact that it is well known in the art that quartz exhibits the piezoelectric effect and is used in fine focusing of optical assemblies.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use quartz as a piezoelectric substrate as to achieve fine focusing of an optical assembly.

(4) With respect to claim 5, Myszka discloses the active assembly apparatus of claim 1, but fails to teach that the piezoelectric substrate comprises a piezoelectric ceramic.

However, the examiner takes official notice of the fact that it is well known in the art that large number of ceramic materials exhibit the piezoelectric effect and are used in fine focusing of optical assemblies.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use quartz as a piezoelectric substrate as to achieve fine focusing of an optical assembly.

(5) With respect to claim 6, Myszka discloses the active assembly apparatus of claim 1, but fails to teach that the piezoelectric substrate comprises a piezoelectric polymer.

However, the examiner takes official notice of the fact that it is well known in the art that some polymers (for example, polyvinylidene fluoride) exhibit piezoelectricity several times larger than quartz and are used in fine focusing of optical assemblies.

Therefore, it would have been obvious to one of ordinary skill in the art at the

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time the invention was made to use quartz as a piezoelectric substrate as to achieve fine focusing of an optical assembly.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Myszka (US 5 039 191) in view of Nakanishi (US 6 374 021).

With respect to Claim 7, Myszka discloses all the subject matter of Claim 1, but fail to teach a wavelength division multiplexer (WDM) filter to reflect the optical signals.

However, Nakanishi teaches wavelength division multiplexer (WDM) filter (171 in fig. 21, 22) to reflect the optical signals (col. 16 lines 50-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include filter as taught by Nakanishi into the system of Myszka as to allow better utilization of the fiber link channels and to improve the system effectiveness.

Allowable Subject Matter

10. Claims 8 and 11-20 are allowed.

11. Claims 9 and 10 would be allowable if rewritten to overcome the objection(s) set forth in this Office action.

12. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest an active assembly apparatus performing a process for aiming the optical receiver at the transmitting core, while the feedback control device controlling the optical receiving and transmitting device

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transmitting the first optical signals to the transmitting core, and while the active assembly apparatus performs a process for aiming the optical transmitter at the transmitting core, the feedback control device controlling the optical transmitter transmitting the second optical signals to the transmitting core.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5 126 729 discloses active alignment system for laser to fiber coupling;

US 4 892 374 discloses a method for aligning and opto-electrical device to a waveguide;

US 4 904 036 discloses subassemblies for optoelectronic hybrid integrated circuits;

US 6 480 651 discloses method and apparatus for aligning optical components;

US 6 205 266 discloses active alignment assembly;

US 6 813 446 discloses system for acquiring and maintaining reliable optical wireless links;

US 6 441 895 discloses precision opto-mechanical assembly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Taranina whose telephone number is (571) 270-1085. The examiner can normally be reached on Mon-Fri (alternative Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MT
08 Nov 2006



KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER